COURSE CODE: MCS-201
POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
PROGRAMME CODE: PGDCAOL-NEW
PROGRAMMING IN C AND PYTHON

Total Marks-100 (Weightage : 70%)   Time Duration-180 Minutes

Note : i) This question paper comprises of 3 Sections: Sections A, B and C.

ii) Section A: Comprises of Short Answer Questions, attempt any 5 out of 7 questions.

iii) Section B: Comprises of Medium Answer Questions, attempt any 5 out of 7 questions.

iv) Section C: Comprises of Long Answer Questions, attempt any 2 out of 3 questions.

Section-I (Short Answer Type Questions) (5×4=20)

Note : Attempt any five questions. Each question carries 4 marks.

1. Draw flowchart and write algorithm to print Fibonacci series upto the number of terms entered by the user.
2. Briefly discuss the relation between framework, library, package and module.
3. Explain the concept of call by reference with suitable code in C.
4. Compare generators and lists in Python. Also, give utility of generators in Python, with suitable example.
5. Differentiate between the term typedef and typecast in C. Give suitable code for each and also discuss their utility.

6. List Mutable and Immutable data types. Also compare both i.e. mutable and immutable data types.

7. Write a program in C to verify that the string entered by the user is palindrome or not. Support your program with suitable comments.

Section-II (Medium Answer Type Questions) (5×10=50)

Note : Attempt any five questions. Each question carries 10 marks.

8. a) What are co-routines? How do co-routines support cooperative multitasking in Python? Explain.

b) Differentiate between co-routines and sub-routines. Give suitable Python code for each.

9. List various looping control statements. Write syntax of each looping construct. Also draw flowchart for each. Use any of the looping constructs to write a program in C to generate the following pattern:

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10. a) Write a program in Python to check that a given year is leap or not. Support your code with suitable comments.

b) What are tuples in Python? What do you understand by the statement "tuples are immutable"? Write syntax for creation, printing and accessing specific element of the tuple.

11. Compare sequential and random access of files in C. Briefly discuss the syntax and role of fseek() and rewind() function, while accessing a file randomly. Support your discussion with suitable code in C.

12. What are Pandas? Write steps to import read and print a CSV file using Pandas. Also, transform your steps in to suitable code in Python.

13. Write a program in C to find product of two matrices, entered by the user. Support your code with suitable comments.

14. Discuss the connect() method of MySQL connector interface. List the arguments involved with connect() method. Write Python code to create database

Employee_DB and to connect to Employee_DB (make suitable assumptions wherever necessary).

Section-III (Long Answer Type Questions) (2×15=30)

Attempt any two questions. Each question carries 15 marks.

15. Write short notes on the following, with suitable examples for each:

i) Functions and its types in C

ii) Array of Pointers

iii) Call by value

16. Write steps to create a package. Apply these steps to create a package named volume, and create 3 modules in it named cube, cuboid and sphere; having function to calculate volume of cube, cuboid and sphere respectively. Import the modules defined in the package and use the defined functions for calculation of volume respectively.

17. a) Write a program in C to sort a list of N numbers, using Bubble sort. Support your code with suitable comments.

b) How do package differ from modules? What is module search path? How can we check it? State the ways of adding a user defined module to search path.